

A large, light gray, stylized sun graphic is positioned on the left side of the slide. It consists of a semi-circle at the top with several rays extending downwards, and a larger, more complex shape at the bottom that resembles a sunburst or a stylized sun with rays extending outwards.

# **2015 U. P. Energy Summit: MISO Perspective**

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September 30, 2015

# Today's Focus

- Brief Overview of MISO
- What's changed since last year?
  - Status of System Support Resources (SSRs) and new Generation Requests in the Upper Peninsula
- Long-term reliability in the Upper Peninsula
  - Resource Adequacy
  - Transmission Planning

# MISO is an independent, non-profit organization in 15 U.S. States and one Canadian province



## MISO by-the-numbers

High Voltage Transmission	65,853 miles
Installed Generation	178,396 MW
Installed Generation	1,594 Units
Peak System Demand	127,125 MW

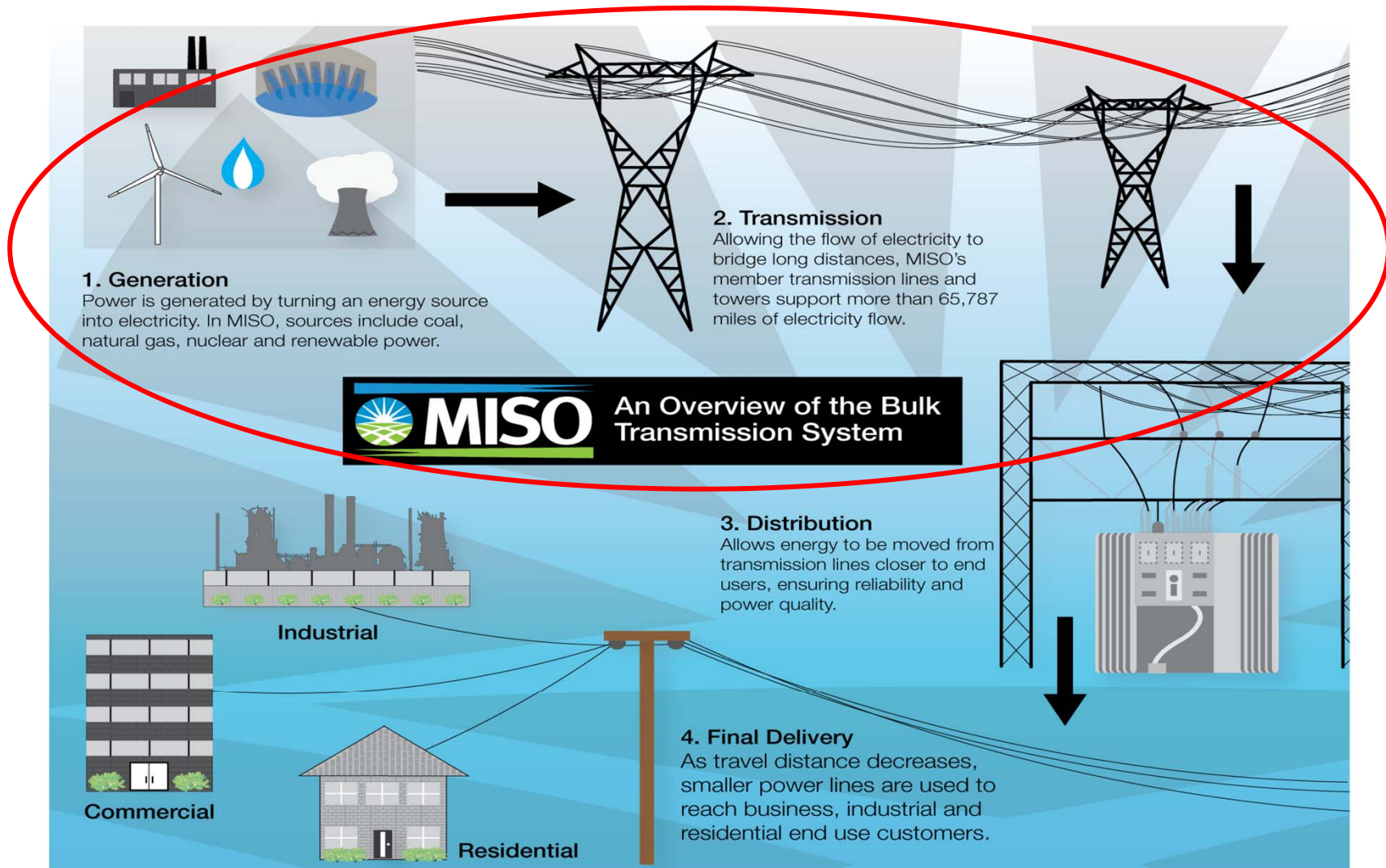
## Mission

Drive value creation through efficient reliability / market operations, planning and innovation

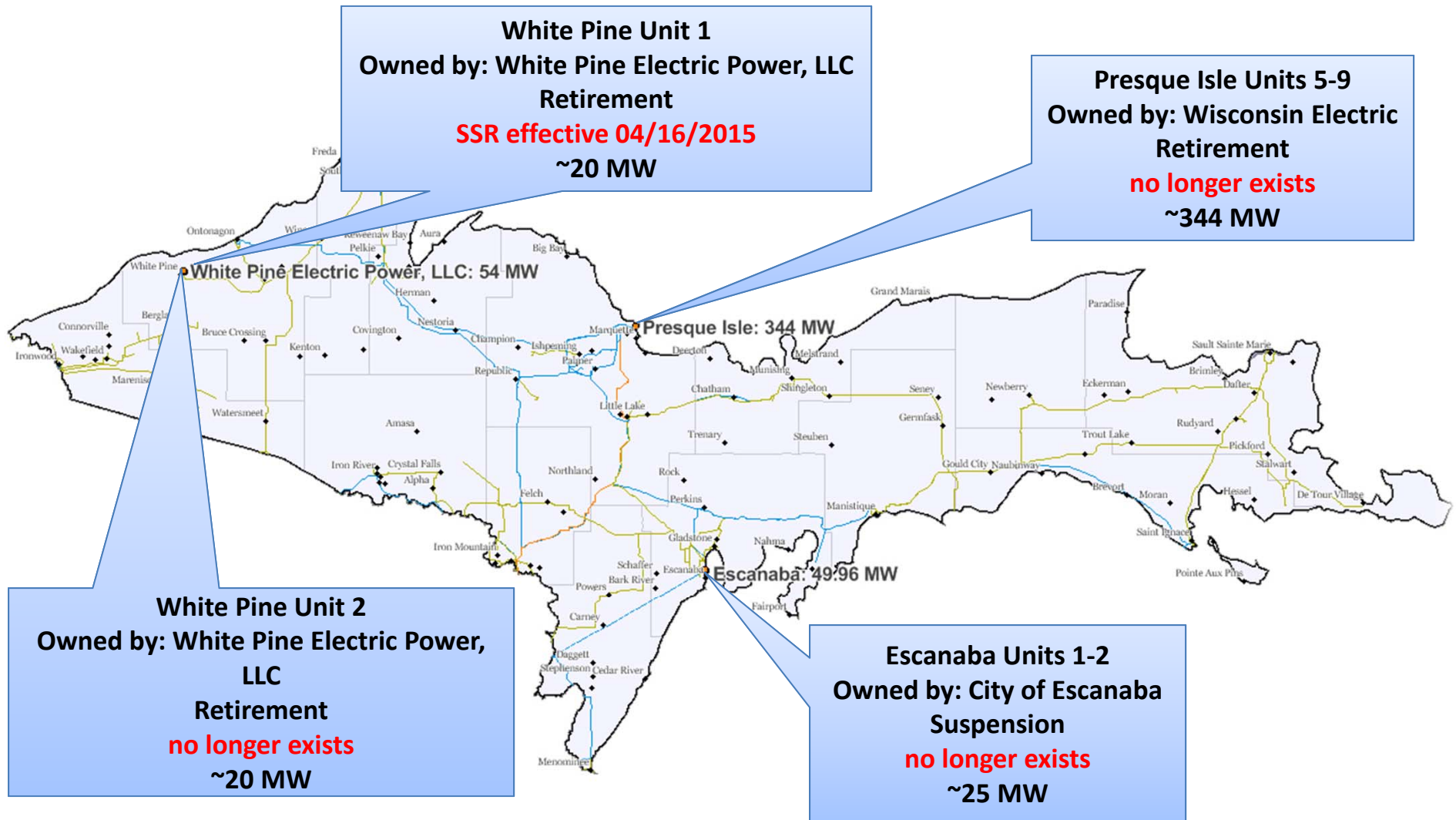
*or restated*

Enable the reliable delivery of least cost electricity to end-use consumers.

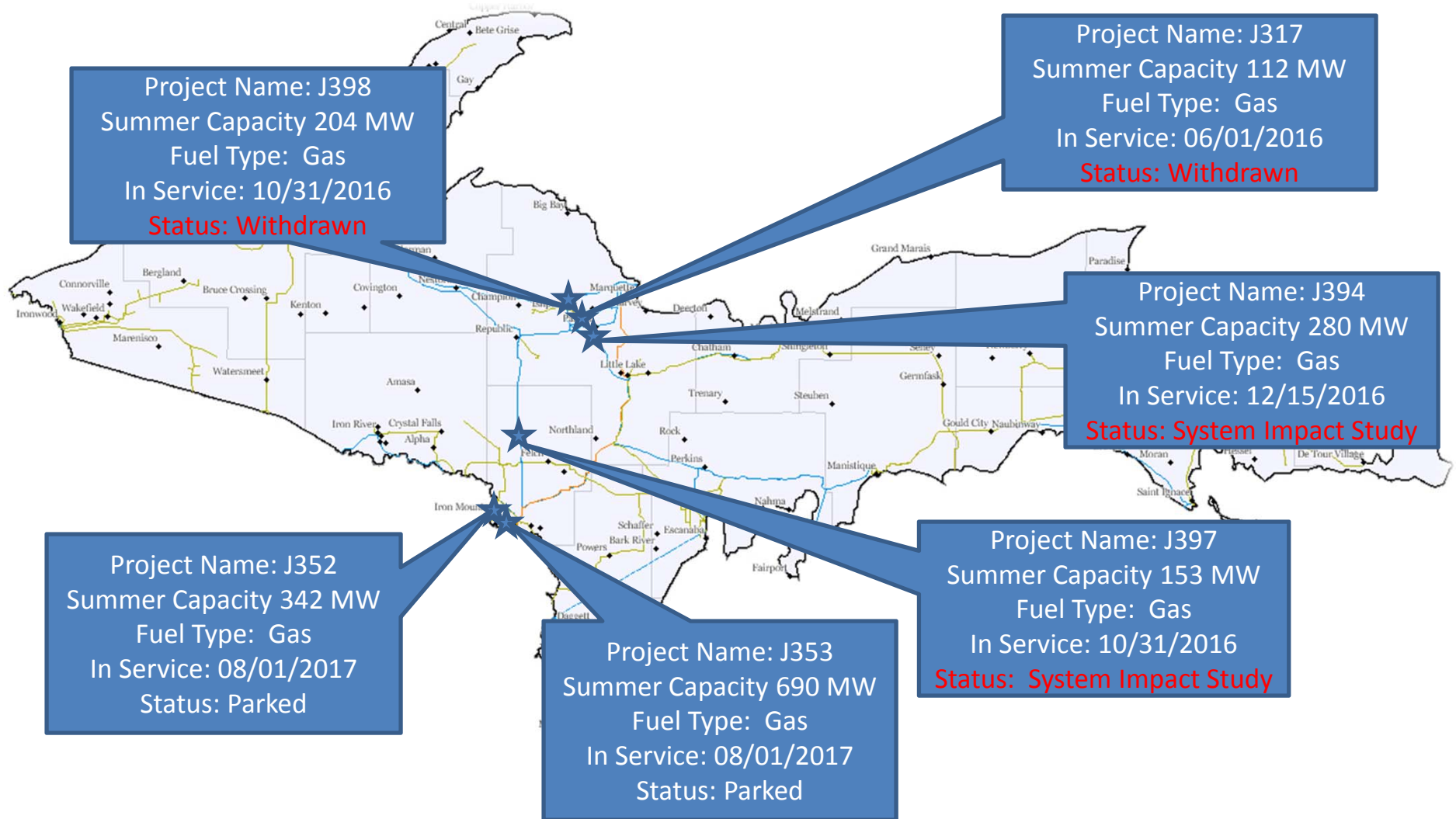
# MISO manages flows on the transmission system by directing generator usage



# Status of System Support Resources (SSRs)



# Generator Interconnection Projects



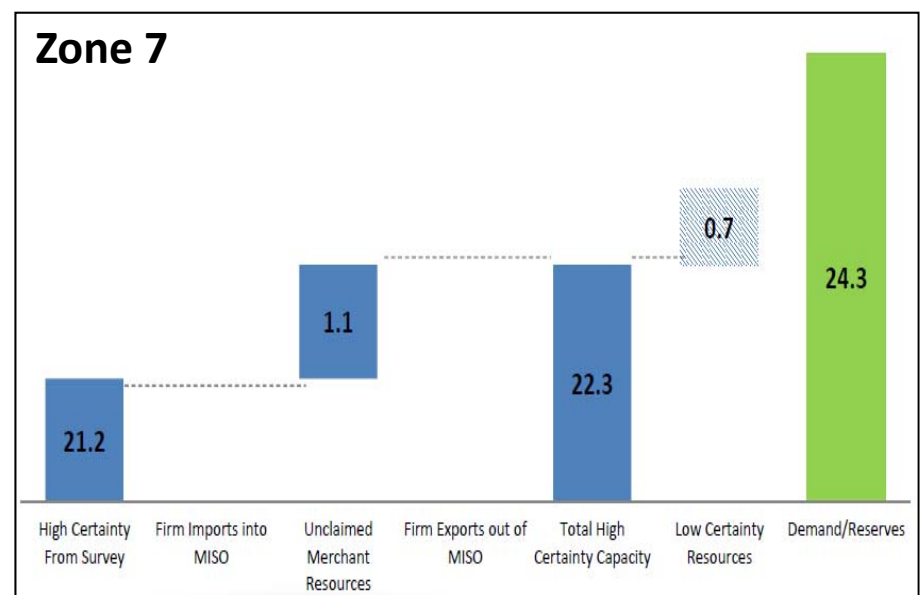
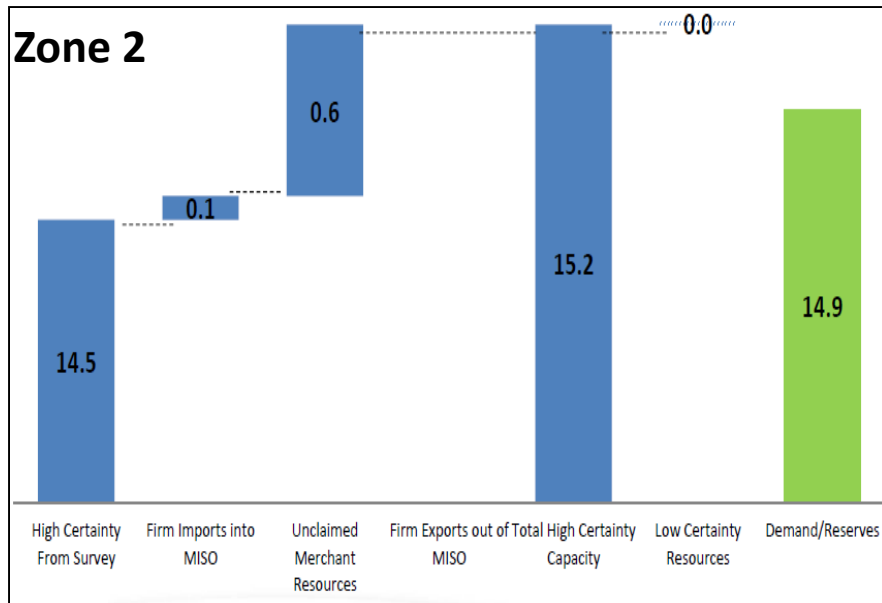


## Resource Adequacy - The Balancing Act

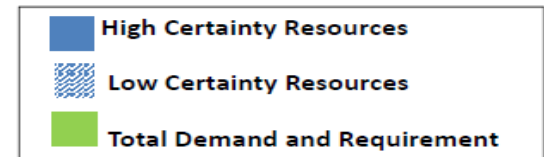
- Day-to-day MISO reliably and efficiently balances the needs of customers with available supply through a centralized, competitive energy markets
- Long-term reliability (resource adequacy) is assured through mandatory reserve margin requirements (planning reserve margin)
  - In the MISO region, Load Serving Entities, with oversight by the States as applicable by jurisdiction, are responsible for their Resource Adequacy
  - Flexibility is provided for Load Serving Entities to meet there requirements



# Michigan's Resource Adequacy Outlook in 2020 (in GW)



\* Zonal values based on capacity location against reserve requirement and do not reflect inter-MISO transfers and future resource commitments





# MISO and stakeholders are addressing Resource Adequacy Issues to make changes for the 2017-2018 Planning Year

## Interconnection Queue Process

- Eliminate restudies
- Implement higher readiness standards
- Reduce facilities study processing times
- Expedite the study cycle timeline
- Reduce commercial uncertainty

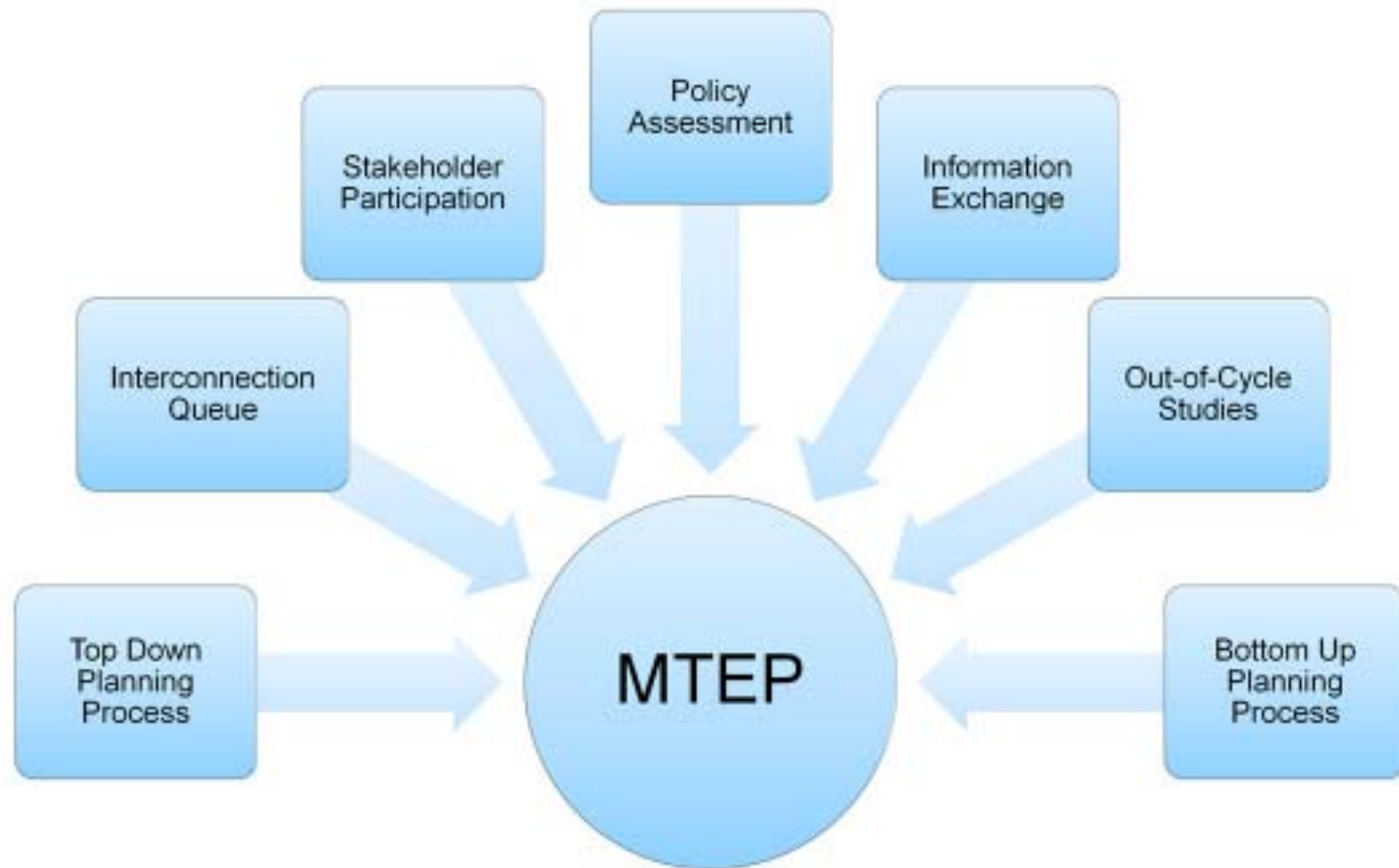
## Seasonality

- Separate seasonal auctions
- Seasonal resource requirements (Planning Reserve Margin Requirements)
- Achieve transparency, reliability, flexibility, market efficiency

## Locational

- Local Resource Zones respecting physical transmission limits and state's jurisdictional authority
- Hedging mechanisms reflective of historical usage and investment
- External resource zones mapped to coordination agreements

# MISO Transmission Expansion Plan (MTEP)



# Unique Transmission Planning Challenges in the Upper Peninsula

- Uncertain resource future, generator additions and retirement
  - Presque Isle expected to retire in 2020
  - Generation Study underway for potential replacement for Presque Isle (Project J394)
  - Other generation additions in the generator interconnection queue
- Potential changes in load patterns; high sensitivity to small changes in load; high load factor
- Long lead time for new transmission infrastructure

***Planning for transmission alternatives must proceed in parallel until resource needs are definitively resolved***

## Summary

- **Significant decrease in the number of SSRs**
- **MISO's survey indicates that Zone 2, which includes the Upper Peninsula, has sufficient resources to meet load obligations over the next five years**
- **MISO continues to plan for the eventual retirement of Presque Isle**
  - Proceed with MTEP approval of Plains-National transmission project in December 2015
  - Complete analysis of J394 (280 MW)
- **MISO will continue to monitor load and generation changes that impact the Upper Peninsula**

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